

# 9. Food Safety

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## ■ Food Safety and Inspection Service

The Office of Food Safety oversees the Food Safety and Inspection Service, the agency within USDA responsible for ensuring the safety, wholesomeness, and correct labeling and packaging of meat, poultry, and egg products. FSIS operates under the authority of the Federal Meat Inspection Act, the Poultry Products Inspection Act, and the Egg Products Inspection Act. FSIS sets standards for food safety and inspects and regulates all raw and processed meat and poultry products, and egg products sold in interstate commerce, including imported products. FSIS is working on a strategy for change to reduce the incidence of foodborne illness attributable to meat, poultry, and egg products.

In FY 1998, FSIS inspected over 7.8 billion poultry and more than 131.9 million head of livestock. Continuous inspection of 73 U.S. egg products plants was provided by 102 inspectors who inspected 2.164 billion pounds of egg products.

The activities of FSIS include:

- Inspecting poultry and livestock, as well as processed products made from them,
- Inspection of all liquid, frozen, and dried egg products,
- Setting standards for plant facilities, product contents, processing procedures, packaging and labeling, and microbial and chemical contamination,
- Analyzing products for microbiological and chemical adulterants,
- Conducting risk assessments, as well as epidemiologic and other scientific studies, to estimate human health outcomes associated with the consumption of meat, poultry, and egg products. These risk assessments and studies provide science-based information for risk management and communication.
- Educating consumers about foodborne illness by way of publications, educational campaigns, and a toll-free, nationwide Meat and Poultry Hotline.

FSIS inspectors check animals before and after slaughter, preventing diseased animals from entering the food supply and examining carcasses for visible defects that can affect safety and quality. Inspectors also test for the presence of drug and chemical residues that violate Federal law. Over the last 20 years, FSIS has made significant progress in reducing the violation rate for drug residues.

*More than 7,500 FSIS inspectors carry out the inspection laws in over 6,400 privately owned meat, poultry, and other slaughtering or processing plants in the United States and U.S. Territories.*

Table 9.1

Livestock, poultry, and egg products federally inspected in 1998	
Cattle .....	33,272,859
Swine .....	93,258,884
Other livestock .....	5,380,056
Poultry .....	7,871,191,688
Egg products .....	2,164,000,000

In addition, about 250,000 different processed meat and poultry products fall under FSIS inspection. These include hams, sausages, soups, stews, pizzas, frozen dinners, and products containing 2 percent or more cooked poultry or at least 3 percent raw meat. In addition to inspecting these products during processing, FSIS evaluates and sets standards for food ingredients, additives, and compounds used to prepare and package meat and poultry products.

As part of the inspection process, FSIS inspectors test for the presence of pathogens and toxins such as *Salmonella*, *Listeria monocytogenes*, and *Staphylococcal enterotoxin* in ready-to-eat and other processed products. No pathogens are permitted in such products.

FSIS also tests for pathogens in some raw products. In 1994, USDA declared *E.coli* O157:H7 an adulterant in raw ground beef and established a monitoring program for the pathogen in raw ground beef. As part of the Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems final rule in July 1996, FSIS for the first time set pathogen reduction performance standards for *Salmonella* that slaughter plants and plants producing raw ground products must meet. The final rule also requires meat and poultry slaughter plants to conduct microbial testing for generic *E.coli* to verify the adequacy of their process controls for the prevention of fecal contamination.

Imported meat and poultry are also subject to FSIS scrutiny. The agency reviews and monitors the foreign inspection systems to ensure they are equivalent to the U.S. system before those countries are allowed to export. When the products reach the United States, products are reinspected at 155 active import locations by import inspection personnel.

More than 2.8 billion pounds of meat and poultry passed inspection for entry in the United States from 32 countries during 1998.

## Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems— Implementation— Phases I & II

FSIS issued its landmark rule, Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems on July 25, 1996. The rule addresses the serious problem of foodborne illness in the United States associated with meat and poultry products by focusing more attention on the prevention and reduction of microbial pathogens on raw products that can cause illness. It also clarifies the respective roles of government and industry in food safety. Industry is accountable for producing safe food. Government is responsible for setting appropriate food safety standards, maintaining vigorous oversight to ensure those standards are met, and operating a strong enforcement program to, among other things, deal with plants that do not meet regulatory standards.

The Pathogen Reduction and HACCP rule: (1) requires all meat and poultry plants to develop and implement written standard operating procedures for sanitation (SSOP's), (2) requires meat and poultry slaughter plants to conduct microbial testing for generic *E. coli* to verify the adequacy of their process controls for the prevention of fecal contamination, (3) requires all meat and poultry plants to develop and implement a system of preventive controls, known as HACCP, to improve the safety of their products, and (4) sets pathogen reduction performance standards for *Salmonella* that slaughter plants and plants producing raw ground products must meet.

The Pathogen Reduction and HACCP rule applies to over 6,400 federally inspected and 2,400 State-inspected slaughter and processing plants in the United States. Countries that export meat and poultry products to the United States must also meet the requirements of the final rule. Egg products are not covered by the final rule, but FSIS has developed a strategy that will include HACCP to improve the safety of eggs and egg products.

Implementation of the new science-based, prevention-oriented food safety system began on January 27, 1997, and will be completed by January 25, 2000. On January 27, 1997, all plants, regardless of size, were required to have in place written SSOP's, and slaughter plants were required to begin testing for generic *E. coli*. On January 26, 1998, large plants, those with 500 or more employees, were required to have HACCP systems in place and meet the performance standards for *Salmonella*. Small plants, defined as having 10 or more but fewer than 500 employees, were required to implement the Pathogen Reduction and HACCP rule by January 25, 1999. Very small plants, defined as having less than 10 employees or less than \$2.5 million in sales, must meet the requirements on January 25, 2000.

Implementation in large and small plants has been smooth. Large plants had a 92-percent compliance rate with the HACCP requirements for 1998. The new prevention-oriented meat and poultry inspection system is showing positive results. New data from the first year of testing in large plants show that the prevalence of *Salmonella* in broilers, swine, ground beef, and ground turkey was substantially lower after HACCP implementation. For these four product classes combined, 88 percent of large plants with completed sample sets are meeting the *Salmonella* standard.

Data on the prevalence of *Salmonella* in small plants for the first 6 months will be available soon.

For more information on HACCP and compliance, visit the FSIS web site at: <http://www.fsis.usda.gov>, and access “HACCP Implementation.”

Table 9-2.

Prevalence of *Salmonella* in meat and poultry products: Post-HACCP implementation results from large plants—January 26, 1998, through January 25, 1999.\*

<i>Class of Product</i>	<i>Salmonella Performance Standard (%)**</i>	<i>Post-HACCP implementation Salmonella Prevalence (% , n=no. samples)</i>
Broilers	20.0%	10.9% (n=5697)
Swine	8.7%	6.5% (n=1532)
Ground Beef	7.5%	4.8% (n=1184)
Ground Turkey	49.9%	36.4% (n=748)

\*Reflects testing results from products with 10 or more complete sample sets.

\*\*9 Code of Federal Regulations, paragraphs 310.25(b) and 381.94 (b)

### Technical Service Center

To prepare the agency to implement its new food safety strategy, including the Pathogen Reduction and HACCP final rule, FSIS launched a major reorganization. As part of that reorganization, in May 1997, the Technical Service Center (TSC) was established in Omaha, NE, to provide technical guidance to the agency’s workforce, plant owners and operators, State and foreign officials, industry representatives, and others about meat, poultry, and egg products. The goal was to concentrate in one location the technical expertise previously scattered in numerous headquarters and field offices.

On January 20, 1998, the TSC began operating a toll-free HACCP Hotline in order to provide technical assistance and guidance to meat and poultry plants when HACCP implementation began. The Hotline is staffed by a team of technical experts trained to address HACCP technical and implementation questions and concerns. The TSC staffers respond to telephone, electronic mail, and FAX inquiries. **The toll-free Hotline number is: 1-800-233- 3935, Press 2 to connect to HACCP Hotline.** For more information, visit the TSC web site at: <http://www.fsis.usda.gov/ofc/TSC>.

### Food Safety From Farm to Table

Ensuring food safety is the first priority of the Office of Food Safety and FSIS. As industry complies with the new HACCP and pathogen reduction requirements over a 3-year period, FSIS is moving to a position to more effectively protect consumers from unsafe meat and poultry. First, as effective implementation occurs within plants, inspection resources can be focused more directly on food safety concerns. Second, FSIS will be able to expand its efforts beyond the four walls in slaughter and processing plants to other parts of the farm-to-table food safety chain, and many authorities and responsibilities at each link. The agency is working cooperatively with other agencies, producers, and various organizations to minimize hazards throughout the farm-to-table continuum and thereby reduce foodborne illness.

## Animal Production Food Safety Program

The role of the FSIS Animal Production Food Safety Program (APFSP) in USDA's food safety mission is to work with other Federal agencies with food safety responsibilities to ensure that efforts are coordinated for the food-animal production community, and to foster collaborative opportunities and initiatives for public/private investments in APFSP risk reduction activities and strategies. The APFSP provides leadership and assistance to foster research needed to develop voluntary science-based good production and verification programs for animal production that will reduce chemical, physical, and microbial risk from entering the food chain, supports FSIS public health and commodity food safety initiatives, and is the liaison to the animal production community.

For more information on the APFSP: <http://www.fsis.usda.gov/OPPDE/ap/default.htm>

## HACCP-Based Inspection Models Project

As FSIS proceeds with HACCP implementation, the agency is also continuing its HACCP-based inspection models project. FSIS is developing new inspection models for slaughter plants that slaughter young, generally healthy, uniform animals. Baseline organoleptic and microbial data are currently being collected to document the accomplishments of the current inspection system. Data will also be collected when the new slaughter models, along with modified plant HACCP and process controls, are tested in order to provide a before-and-after picture. FSIS will cooperate very closely with the States on this project to achieve the agency's goal of establishing one fully integrated system that utilizes all available resources to improve food safety.

## Workforce of the Future

As FSIS implements its food safety strategy, the agency is working to ensure its workforce is qualified to function in a HACCP-based inspection system. The workforce of the future will be more versatile and better trained. FSIS has decided to introduce and use the professional series of Consumer Safety Officer (CSO) as a major occupation in our workforce. Consumer safety officers will possess the needed scientific qualifications for employees at the field level. The conversion of the major part of the agency's workforce from inspectors to CSO's will be accomplished over time.

FSIS is also in the process of strengthening the role of veterinarians in the agency. FSIS believes its veterinary medical officers are underutilized and wants to make better use of the veterinarians' skills in epidemiology, microbiology, toxicology, and other scientific areas throughout the regulated food production and distribution process.

## Regulatory Reform

FSIS continues to make progress on regulatory reform. This initiative was begun in 1995 to improve food safety, allow a more productive use of Federal resources, eliminate unnecessary burdens, and expand consumer choice in the marketplace. One direction in which the agency is headed is a shift away from "command and control"

regulations toward performance standards, which provide companies with the flexibility needed to be innovative. FSIS issued new performance standards for the production of cooked beef products, uncured meat patties, and certain poultry products. Additional performance standards will be issued in the future.

In order to eliminate unnecessary regulatory burdens, FSIS eliminated the requirements for prior approval of blueprints, equipment, and certain partial quality control programs. The proposed rule on the irradiation of meat and meat products that was published in the *Federal Register* on February 24, 1999, is an example of a regulation that will improve food safety and allow companies to innovate.

## Emerging Issues

Over the past several years, FSIS has enhanced the public health focus of its food safety program, helping the agency address emerging and re-emerging issues. Based on data from the Centers for Disease Control and Prevention (CDC), *Campylobacter* is the number one cause of sporadic cases of foodborne illness. FSIS has a monitoring program for all classes of raw chicken carcasses to determine *Campylobacter* prevalence, and in January 1999 began a 1-year baseline data collection in young chickens to update a previous baseline study. The information from the baseline study will be used to establish performance standards for *Campylobacter*.

FSIS announced a strategy for controlling *Listeria monocytogenes* in ready-to-eat meat and poultry products in May 1999. First, the agency is requiring plants to reassess their HACCP plans to adequately address *Listeria*. Second, FSIS is providing guidance to the industry on practices that have been shown to prevent *Listeria*. Third, FSIS also announced four longer term initiatives on *Listeria monocytogenes*. For more information on the *Listeria* strategy, visit the FSIS web site at: <http://www.fsis.usda.gov>, and access "*Listeria*."

## President's Council on Food Safety

In late August 1998, President Clinton signed an Executive Order establishing the President's Council on Food Safety. The Council was established to promote a more coordinated approach to food safety in this country. The primary functions of the Council are: to develop a comprehensive strategic Federal food safety plan; advise agencies of priority areas for investment in food safety, ensuring that Federal agencies annually develop coordinated food safety budgets; and oversee the recently established Joint Institute for Food Safety Research, ensuring that it addresses the highest priority research needs. The Secretaries of Agriculture and of Health and Human Services and the Assistant to the President for Science and Technology/Director of the Office of Science and Technology serve as Joint Chairs of the Council. The President's Council is the next step toward a goal of ensuring that there is a seamless, science-based food safety system in this country.

For more information on the President's Council on Food Safety and the President's Food Safety Initiative, visit the Council's web site at: <http://www.food-safety.gov>, and access "President's Council on Food Safety."

## Foodborne Diseases Active Surveillance Network (FoodNet) and PulseNet

Through the Foodborne Diseases Active Surveillance Network (FoodNet), FSIS, the Food and Drug Administration (FDA), and the CDC, in collaboration with State and local health departments at eight locations or sites across the country, are better able to track the incidence of foodborne illness. They can also monitor the effectiveness of food safety programs or control measures, such as USDA's Pathogen Reduction/HACCP rule, in reducing foodborne illness. FoodNet does not replace, but rather augments, the many longstanding activities of the Federal and State agencies that are used to identify, control, and prevent foodborne disease hazards. USDA, in conjunction with the other Federal and State agencies, submits an annual report to Congress on FoodNet activities. For more information on FoodNet or for copies of the report, visit the FoodNet web site at: <http://www.cdc.gov/ncidod/dbmd/foodnet>.

PulseNet is a national computer network of public health laboratories that helps to rapidly identify and stop episodes of foodborne illness. The laboratories perform DNA "fingerprinting" on bacteria that may be foodborne, and the network permits rapid comparison of these "fingerprint" patterns through an electronic database at the CDC. PulseNet is an early warning system that links seemingly sporadic human illnesses together; as a result, more outbreaks can be recognized, especially those that involve many States. Investigation of these outbreaks should result in identification of hazards and implementation of new measures to increase the safety of the food supply. For more information, visit the PulseNet web site at: <http://www.cdc.gov/ncidod/dbmd/pulsenet/pulsenet.htm>

## International Food Safety

In today's global marketplace, the food consumers eat is likely to come from a number of different countries. Consumers must have confidence in the safety of their food, whether it is produced domestically or imported. The Codex Alimentarius Commission (Codex) is the food standards program jointly supported by the Food and Agriculture Organization of the United Nations and the World Health Organization. Codex was established to help protect the health of consumers and to facilitate trade through the establishment for international food standards, codes of practice, and other guidelines. There are many Codex committees that set standards for a variety of commodities and that address a number of general issues. The work of Codex, along with national food safety agencies, is important to maintaining consumer confidence in the safety of the food supply.

Currently, there are more than 160 member countries in Codex Alimentarius. In the United States, officials from USDA, the FDA, and the U.S. Environmental Protection Agency (EPA) participate in Codex activities. The U.S. Manager for Codex reports to the Under Secretary for Food Safety in USDA. For more information on Codex, visit the FSIS web site: <http://www.fsis.usda.gov>, and access "U.S. Codex Office."

In December 1994, the Sanitary and Phytosanitary Agreement, commonly known as the SPS Agreement, was ratified by the United States. This agreement changed international law in that signatory countries can now use either the *same* or *equivalent* sanitary measures to meet the level of protection established by an import-

ing country, and the importing country has the right to decide if a foreign inspection system is equivalent. This contrasts with the “equal to” approach that was in place prior to December 1994. U.S. meat and poultry inspection laws and regulations were amended to comply with the requirements of the SPS Agreement. FSIS has developed a process for evaluating whether exporting countries have systems and measures in place that are equivalent to the U.S. system. The agency is also working through the Codex’s Committees on Food Import and Export Inspection and Certification Systems to develop international guidelines on determining equivalence to better protect the public health and facilitate trade.

## Food Safety and Consumer Education

FSIS conducts an extensive outreach program of consumer education to meet information needs for basic safe food handling advice to avoid foodborne illnesses. Information is disbursed to the media, information multipliers, and consumers through the FSIS web site, printed materials, videos, personal contact via USDA’s Meat and Poultry Hotline, and presentations by FSIS representatives.

The agency’s consumer education programs focus on providing key food safety materials to the general public and special groups who face increased risks from foodborne illness—the very young, the elderly, people who have chronic diseases, and people with compromised immune systems. These materials are based on the latest scientific advice in education and market research concerning foodborne illness. Educational materials include a wide variety of specific safe food handling advice on *E. coli* O157:H7, *Listeria monocytogenes* and other pathogens, food safety information for seniors and children, and *The Food Safety Educator*—a free quarterly newsletter available in print or on the FSIS web site. The Food Safety Education Office also produces news features, public service announcements, and joint food safety projects with other government agencies and food associations.

See “For More Information.”

## Partnership for Food Safety Education

The Partnership for Food Safety Education is a national organization dedicated to educating consumers about the importance of food safety. USDA serves as Federal Government liaison to the partnership, along with the U.S. Department of Education, U.S. Department of Health and Human Services, and the EPA.

The partnership was formed in 1997 in response to the President’s National Food Safety Initiative and an independent panel report calling for a public-private partnership of industry, government, and consumer groups to educate the public about safe food handling to reduce foodborne illness.

While the United States has one of the safest food supplies in the world, preventing foodborne illness remains a major public health challenge. The partnership developed the Fight BAC!<sup>TM</sup> public education campaign in conjunction with the 1996 National Food Safety Initiative to simplify and provide useful information about safe handling of all foods.



## Safe Handling Instructions

This product was prepared from inspected and passed meat and/or poultry. Some food products may contain bacteria that could cause illness if the product is mishandled or cooked improperly. For your protection, follow these safe handling instructions.



Keep refrigerated or frozen.  
Thaw in refrigerator or microwave.



Keep raw meat and poultry separate from other foods.  
Wash working surfaces (including cutting boards), utensils, and hands after touching raw meat or poultry.



Cook thoroughly.



Keep hot foods hot. Refrigerate leftovers immediately or discard.



### Fight BAC!™ Campaign

Fight BAC!™ is a far-reaching, ambitious and consumer-friendly public education campaign focused on safe food handling. The Fight BAC!™ campaign goal is to educate consumers on the four simple steps they can take to fight foodborne bacteria and reduce their risk of foodborne illness.

BAC!, the campaign's spokescharacter, is the invisible enemy who tries his best to spread contamination wherever he goes. By giving foodborne bacteria a personality, BAC! makes the learning process more meaningful and memorable for consumers of all ages.

The campaign stresses four key principles for preparing food safely and keeping it safe:

- Clean—wash hands and surfaces often;
- Separate—don't cross-contaminate;
- Cook—cook to proper temperatures; and
- Chill—refrigerate promptly.

To date, the Partnership for Food Safety Education has:

- built a network of partners—comprised of more than 500 national, State, and local organizations from the public health, government, consumer, and industry sectors—who support the Fight BAC!™ campaign and distribute educational materials;
- produced an animated television public service announcement (PSA) featuring the BAC! character, which aired on more than 100 television stations reaching more than 310 million viewers in the early stages of the campaign. The PSA has been translated into other languages, including Spanish, Chinese, Korean, and Vietnamese;
- created and distributed a Fight BAC!™ brochure in both English and Spanish outlining the basics of fighting foodborne bacteria;
- developed a web site (<http://www.fightbac.org>) that has generated millions of hits from the United States and 50 other countries;
- mobilized hundreds of supermarkets across the country to participate in the Fight BAC!™ campaign by featuring the logo and consumer tips on flyers, signs, and grocery bags; and
- designed an elementary school program, which educates through entertainment using BAC! puppets, games, and songs.
- designed and distributed over 10,000 school-based programs for 4-6 grade educators that include a video, teachers guide, classroom posters, and a BAC! catcher game.

## USDA Meat and Poultry Hotline

Consumers have been calling USDA's toll-free Meat and Poultry Hotline for answers to their food safety questions since 1985. The Hotline, part of FSIS' Food Safety Education Staff, is staffed by home economists, registered dietitians, and food technologists with expertise in food safety.

Consumers are the primary users of the Meat and Poultry Hotline, but by no means the only ones. Hotline specialists frequently advise and consult with other professionals in government, academia, and industry. The Hotline responds to hundreds of media calls each year and is responsible for bringing food safety information to millions of consumers through these media outlets. To further assist reporters, writers, educators, and other information multipliers, the Hotline develops and periodically mails educational materials to several thousand newspaper and magazine food and health editors and some consumer affairs professionals.

The Hotline received 109,804 calls between January 1 and December 31, 1999. Many were basic food handling questions, often related to safe preparation of holiday meals. Other questions reflected concern for the overall safety of the food supply, covering such topics as meat inspection reform, *E. coli* O157:H7 testing, premature

browning of ground beef, transportation and storage of shell eggs, food irradiation, labeling claims, agricultural practices, and product recalls.

Its nationwide service area enables the Meat and Poultry Hotline to serve as an early warning system, detecting possible public health threats. Data collected by the Hotline helps FSIS discern gaps in consumer knowledge. In essence, Hotline callers serve as a focus group. Analysis of caller questions and concerns allows FSIS to plan effective educational campaigns.

### **What To Do If You Have a Problem With Food Products**

- **FOR HELP WITH MEAT, POULTRY, AND EGG PRODUCTS:**

Call the toll-free USDA Meat and Poultry Hotline at 1-800-535-4555; (202-720-3333 in the Washington, DC, area; TTY, 1-800-256-7072).

- **FOR HELP WITH RESTAURANT FOOD PROBLEMS:**

Call the Health Department in your city, county, or State.

- **FOR HELP WITH NONMEAT FOOD PRODUCTS:**

Call or write the Food and Drug Administration (FDA). Check your local phone book under U.S. Government, Health and Human Services, to find an FDA office in your area. The FDA's Food and Information & Seafood Hotline telephone number is 1-800-332-4010 ( or 202-205-4314 in the Washington, DC, area).